DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Walter Pledger on April 15, 2010.

Claims 1, 4, and 9 are cancelled.

Allowable Subject Matter

Claims 5, 8, and 10 are allowed.

The closest prior art references are Verloop et al (US 4,153,674) and Forg et al (US 5,660,807).

The following is an examiner's statement of reasons for allowance:

Regarding claim 5, Verloop et al discloses a reaction off-gas containing COS, H_2S, H_2O, and CO, heating the mixture of the reaction off-gas, hydrogen- and carbon monoxide-containing gas, and an oxygen-containing gas, after heating the mixture is passed through a sulphided metal catalyst containing one or more metal: chromium and/or nickel with an inorganic carrier of boria (see column 3, lines 29-45; column 4, line 59 through column 5, line 9; and column 5, lines 19-42).

Forg et al discloses a gas mixture that must be freed of sour gas portion such as hydrogen sulfide and containing COS and bringing the gas mixture into contact with a catalyst comprising of TiO_2 and Cr_2O_3 (see column 1, lines 13-26 and line 50 through column 2, line 9; column 2, lines 33-42).

The prior art references do not disclose or suggest a COS treatment method for a gasified gas containing COS, H_2S, H_2O, O_2, and CO, the method comprising: increasing an initial concentration of COS in the gas and decreasing concentration of H_2S, CO and O_2 in the gas by using an O_2 removal catalyst consisting of TiO_2 and Cr_2O_3 or consisting of TiO_2 and NiO at a gas temperature of at least 300ºC to accelerate the following reaction:

$2H_2S + 2CO + O_2 \rightarrow 2COS + 2H_2O$, and

after the increasing of the initial concentration of COS in the gas and the decreasing of the concentration of H_2S, CO and O2 in the gas, decreasing the increased concentration of COS in the gas to a concentration lower than the initial concentration of COS in the gas by converting COS contained in the gas to H_2S by using a COS conversion catalyst.

Claim 8 depends on claim 5.

Regarding claim 10, Verloop et al discloses a reaction off-gas containing COS, H_2S, H_2O, and CO, heating the mixture of the reaction off-gas, hydrogen- and carbon monoxide-containing gas, and an oxygen-containing gas, after heating the mixture is passed through a sulphided metal catalyst containing one or more metal: chromium

and/or nickel with an inorganic carrier of boria (see column 3, lines 29-45; column 4, line 59 through column 5, line 9; and column 5, lines 19-42).

Forg et al discloses a gas mixture that must be freed of sour gas portion such as hydrogen sulfide and containing COS and bringing the gas mixture into contact with a catalyst comprising of TiO_2 and Cr_2O_3 (see column 1, lines 13-26 and line 50 through column 2, line 9; column 2, lines 33-42).

The prior art references do not disclose or suggest a COS treatment method for a gasified gas containing COS, H_2S, H_2O, O_2, and CO, the method comprising: removing O_2 from the gas by using a TiO_2 catalyst carrying Cr_2O_3 and BaO to accelerate the following reaction:

$2H_2S + 2CO + O_2 \rightarrow 2COS + 2H_2O$; and

simultaneously converting COS to H_2S by using the TiO_2 catalyst carrying Cr_2O_3 and BaO.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See Nedez et al (US 2004/0247507 A1) and Voirin (US 4,399,112).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Thurs 7:30 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Y./
Examiner, Art Unit 1797

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797